TANDD

Wireless for Windows®

RTR-70

User's Manual

Thank you for purchasing this product.
Carefully read and fully understand these instructions before using this unit.

Wireless Data Logger Series

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2003.2 16004094070

Notices about this User's Manual

- Please read this manual carefully before using the product.
- This manual cannot be reprinted, so please keep it in a safe place.
- We cannot guarantee nor are we responsible for safety if this product is used in any manner other than was intended.
- Please follow the safety precautions carefully.
- Contents of this manual may be altered according to improvements made to the product without notification.
- On-screen messages in this manual may vary slightly from the actual messages.
- Figures in this manual may be slightly simplified and may differ from the actual product.
- Please notify us of any unclear points, mistakes or errors in this manual.
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Safety Precautions

To ensure safe operation, please be sure to read, understand and follow the contents of all such warnings.

⚠DANGER

- This product has been designed for private or industrial use only.
- It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the malfunction of our unit. Please be fully aware of this before using our product.
- It is dangerous to swallow batteries. Store all batteries, sensors and Thermo Recorder units out of the reach of children.
- Do not take apart, repair or modify the main unit. It may cause fire, electrocution or damage. Please ask the shop where you bought the product or T&D to carry out any repairs.
- Do not operate if the power cable is wet or with wet hands. It may cause electrocution or failure.
- If water or a foreign object enters the case, immediately cease using it. Continued use may cause fire, electrocution or damage.
- Do not use in areas prone to heavy dust, smoke, steam or moisture; this may cause failure.

⚠Notices about Safe Operation

- This unit is not waterproof. Do not use in areas prone to splashing. This may cause deletion of data, inaccurate readings, or other malfunctions. If the unit becomes dirty, please wipe with an alcohol dampened clean cloth.
- Please be careful when using in overly hot or cold environments. Touching the units may cause burns or frostbite.
- Do not drop the unit, place heavy weight on the unit nor expose the unit to a strong impact. Doing so may cause damage to the unit.

- Battery life depends on the measurement environment, communication frequency, recording interval and battery quality.
- Battery terminals may provide insufficient contact due to age or vibration. Please be careful not to lose data due to insufficient contact.
- Remove batteries from any unit that is not to be used for a long period of time. Batteries left in a unit not being used for a long time may leak and cause a malfunction.
- Do not put your fingers or foreign objects into the communication port.
- Do not use any AC Adapter other than the one provided for this unit.
- Using the software provided [Wireless for Windows] make sure to set up this unit as a Base Unit, Remote Unit, or Relay Unit. It will not operate without doing this.
- Neither the Base Unit nor a Relay Unit can measure or record data. Only Remote Units can measure and record data.
- T&D accepts no responsibility for any damages or trouble in any form that are directly or indirectly the results of using measurement taken with this wireless data logger.

About TR-5320, the standard temperature sensors for RTR-71

- Use the sensors only within the measurable temperature range (-60 to 155℃).
- Please make sure that the external temperature sensor jacks are securely inserted into the main unit.
- The sensor cable is coated with Teflon®. The coating is thin and if scratched or torn will cause a reduction in water resistance. Please check before using.
- To ensure accurate measurements, make sure to insert the end of the sensor at least 3 cm into the object or area.
- This sensor cannot be used with RTR-72.

About TR-3220, the standard temp./humidity sensor for RTR-72

- This sensor is not waterproof.
- Use the sensor only within the measurable temperature and humidity range (Temperature: 0 to 50℃ , Humidity: 10 to 95%RH)
- The unit may give an error in humidity value if there is a rapid change of temperature. However, the value will return to normal after the sensor temperature stabilizes.
- The temperature/humidity sensor cable cannot be extended.
- When the sensor is not used, put it in the attached plastic bag with a drying agent and keep it in a cool, dark place at 5 to 25℃ and 30%RH or less.
- Please make sure that the external sensor jack is securely inserted into the main unit.
- This sensor cannot be used with RTR-71.

⚠ Notices About Placement and Location

- A sudden change in widely different temperature environments may cause condensation to occur. Please use the unit in areas with a temperature range of 0 to 50℃ and a humidity range of 10 to 90%RH (without condensation).
- Do not use, store or leave the unit in areas that are prone to direct sunlight or extremely high temperature or humidity. If the unit's internal temperature rises too high, it may cause fire or other malfunctions to occur.
- Poisonous gases and chemicals may cause the unit to corrode. Also, poisonous substances coming in contact with the unit may cause damage or harm to people and animals. Please do not use the unit in environments subject to or influenced by poisonous gases or chemicals.
- Direct vibrations from machinery may cause connections to be loosened and subsequent malfunction. Please use in stable areas.
- Do not place in or near areas subject to strong magnetic forces.

Software User Agreement

Escape Clauses

1. T&D Corporation shall not guarantee the operation of Wireless for Windows®.
2. T&D Corporation shall not accept any responsibility nor shall T&D become involved in any claim reparation proceedings or compensate any claimant for any damage whether direct or indirect that result from the usage of Wireless for Windows®.
3. Specifications of Wireless for Windows® may be subject to change and service may be terminated without advance notice to the user. In such a case, T&D Corporation shall not be responsible nor shall T&D Corporation become involved in any claim reparation proceedings or compensate any claimant for any damages whether direct or indirect from the inability to use Wireless for Windows®.
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3. Do not attempt to make any changes or modifications to Wireless for Windows®.

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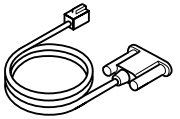
Accessories Included

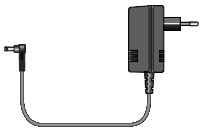
The flowing items should be included in your product package. Before starting please check to make sure everything has been included.

Communication Cable × 1
(RS-232C: D-sub9pin)



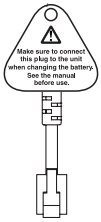
CD Rom × 1
(Wireless for Windows Set Up Disc)

AC Adapter × 1



User's Manual × 1

Battery Change Plug × 1



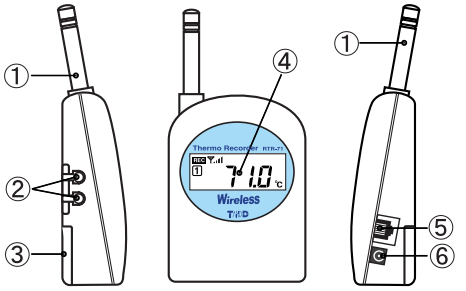
*The battery change plug is necessary when you replace the battery, so please make sure to keep it in a safe place.

Do not use the battery change plug with any Thermo Recorders other than RTR-71 and RTR-72.

Outline of Part Names

■ RTR-71 / RTR-72 Main Unit (Sold Separately)

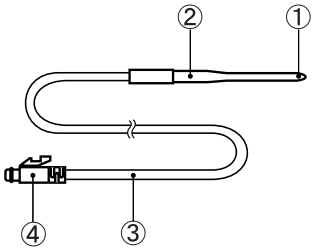
*Can be used as a Base Unit, Relay Unit, or a Remote Unit.



① Antenna
② Sensor Connection
③ Battery Compartment
④ LCD Display
⑤ Serial Communication Connection
⑥ AC Adapter Connection

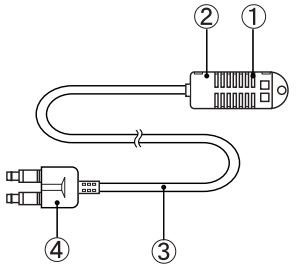
■ Sensors

● TR-5320



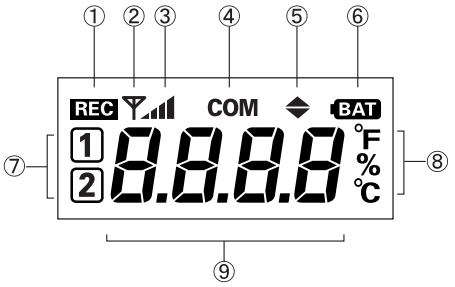
① Thermistor
② Stainless Pipe (SUS316)
③ Cable (Teflon Resin Coated)
④ Connector

● TR-3220



① Temp / Humidity Sensor
② Polypropylene Resin
③ Cable (Vinyl Chloride Coated)
④ Connector

■ Main Unit LCD Display



① **REC Recording Indicator**

Displayed when recording is in progress.

② **Antenna Indicator**

Displayed when wireless communication is possible.

③

Displays strength of radio wave.

④ **COM**

Displayed when communication is in progress.

⑤

Displayed when either temperature or humidity exceeds upper or lower limit.

⑥ **BAT Battery Life Warning**

Displayed when battery power becomes low. Wireless communication cannot take place, so please change battery as soon as possible.

⑦ **1 2 Channel Indicator**

Indicates which channel of data is being displayed.

⑧ **°F % °C Measurement Display Unit**

Indicates the unit in which the measurement is displayed. You can change the unit via computer. % is the measuring unit for humidity on the RTR-72 but may also be used to indicate the radio wave strength.

⑨ **Unit Indicator**

Base unit will display [bASE], Relay Unit will display [rLAY] and Remote Unit will display current readings.

Outline of Wireless Thermo Recorder

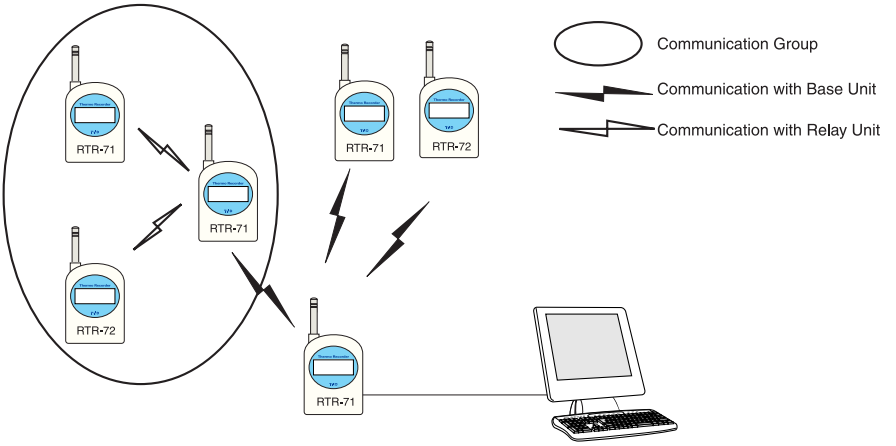
RTR-71, RTR-72

■ The System

Wireless Downloading Function

Possible to gather and manage temperature data from a variety of separate places.

Temperature is measured and recorded by each Remote Unit and by making use of short wave wireless communication you can gather all of that data in to your computer. Communication can take place within up to 400 meters if unobstructed and clear. (Note: This differs with conditions.)



Possible to mix RTR-71 and RTR-72 in same group

The Base Unit is set up to communicate with Groups of Remote Units. One Group can contain up to 126 Remote Units and up to 32 Groups can be registered to 1 Base Unit.

Each Thermo Recorder can be set up as you wish

Any Thermo Recorder Unit can be set up and registered to carry out any of the three roles in the system: Base Unit, Relay Unit or Remote Unit.

Base Unit: The Base Unit is directly connected to your computer and functions to send out orders via short wave wireless communication to Remote Units, as well as gather recorded data. Besides inserting the lithium battery, please make sure to connect the Base Unit to a power source using the AC adapter supplied. The Base Unit cannot measure, record or display temperature or humidity.

Relay Unit: A Remote Unit is used when communication conditions between the Base Unit and Remote Unit(s) are poor. In a group where a Relay Unit has been set up, all Remote Units registered to that group will communicate via the Relay Unit. Besides inserting the lithium battery, please make sure to connect any Relay Unit to a power source using the AC adapter supplied. A Relay Unit cannot measure, record or display temperature or humidity.

Remote Unit: A Remote Unit measures and records temperature and / or humidity, and following orders from the Base Unit communicates that data to the Base Unit. If an electrical outlet is nearby, the AC adapter may be used in addition to the lithium battery. Always keeping a battery in every unit will help to cut down the chances of data loss due to power failures.

Measuring and Recording

One Unit / Two Temperature Channels (RTR-71)

Up to 1440 readings can be recorded in each channel and recording interval can be selected from 8 choices (1 minute-60 minutes)

One Channel for Humidity / One Channel for Temperature (RTR-72)

Channel 1 measures temperature and Channel 2 measures humidity.

3 Month Lithium Battery Life (Remote Unit)

A Remote Unit can function for about 3 months consecutively on 1 lithium battery CR123A. When battery power becomes low, a message to change the battery is displayed and all recorded data is automatically saved. If power is completely lost so is the data, so be sure to replace battery as soon as possible.

Using the Software

Gathering Data via Wireless Communication

You can set up the program schedule to gather recorded data either at a set time interval or at a set time of day. Also, when necessary you can gather present data.

Monitoring Temperature and Humidity

With the software you can set upper and lower limits for each channel and the monitoring function will periodically check to see if a limit has been exceeded. If a limit has been exceeded a warning will be displayed on your computer screen. Settings can be made differently for each Remote Unit.

■ Software [Wireless for Windows®]

The Software is made up of the following three software programs

Wireless for Windows® **(Set up Program)**	This is the main program and controls registration and settings for all units as well as manages the downloading of data via cable. (see p16)
Wireless for Windows® **(Control Program)**	This will be placed in your Start up Menu. It will automatically open and an icon will appear in the task tray. It manages the Auto Downloading and Warning Monitoring functions. (see p15)
Wireless for Windows® **(Graph Tools Program)**	This manages the creation of graphs, data tables and text type files as well as all printing functions. (see p38)

First Steps

1. Installing Software

① Open Windows

② Close all other applications before installing this program

③ Place Software CD Rom in CD Rom Drive of your computer.

④ Open [SETUP. EXE] and follow the directions as they are displayed.

⑤ After installation is finished the Wireless for Windows program will be registered in the [Start] Menu.

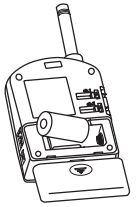
About the Control Program

The [Control Program] will be opened automatically upon Start up and an icon will appear in the task tray. By clicking on the [Control Program] icon in the task tray you can open the [Start up Program] as well as the [Graph Tools Program].

If a failure to properly install occurs, please re-install (see p.45)

2. Installing the Battery

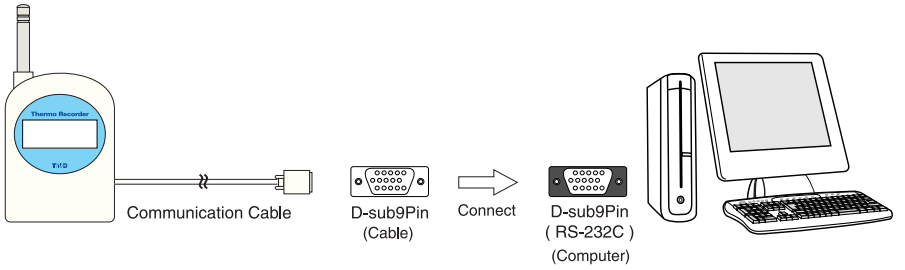
Please place a lithium battery (CR123A) in the main unit as shown in figure below. Remember that even though you connect the Base Unit and /or the Relay Unit(s) with the AC adapter, it is better to supply them with a lithium battery to help prevent data loss in the case of power failure.



- Always put in a new battery
- Be sure that + and - are in the correct directions.

3. Connecting Main Unit to Computer

Connect the Thermo Recorder main unit to the computer with the communication cable provided. Each unit's registration or deletion of registration should be done one at a time by connecting it to the computer with the communication cable.



- Please connect the communication cable to the serial port [RS-232C] with a mark such as shown below.
- If you connect the cable to a port other than the serial port, communication will not occur properly.
- Make sure that the cable is securely connected.

About the Control Program

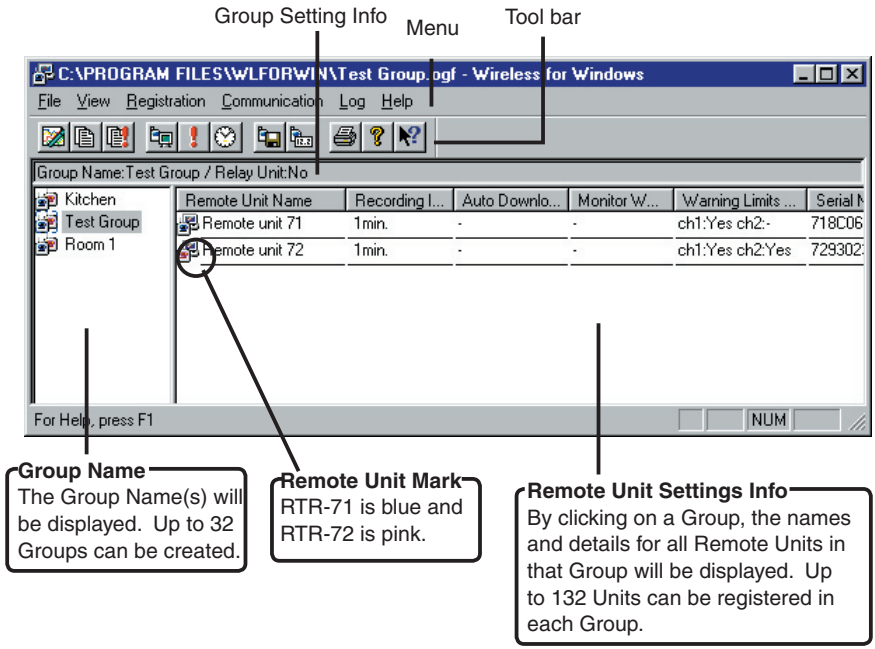
The [Control Program] will be opened automatically upon Start up and an icon will appear in the task tray. By clicking on the [Control Program] icon in the task tray you can open the [Start up Program] as well as the [Graph Tools Program].

Set up Program: From Registration to Positioning

When using a Thermo Recorder unit for the first time it is necessary to use the Set up Program to register each unit as a Base Unit, Relay Unit, or Remote Unit.

1. Explanation of Display

Upon opening [Wireless for Windows] the Main Window will be displayed as follows:

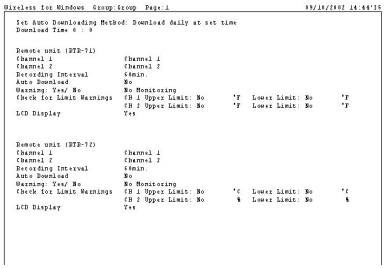


•Tool Bar

① Open / Close Graph Tools Program
② Auto Download Log
③ Warning Log
④ Display Present Readings
⑤ Start /Stop Warning Monitoring
⑥ Start / Stop Auto Downloading
⑦ Wireless Download
⑧ Change Remote Unit Registration
⑨ Print
⑩ About Program Version
⑪ Help

•Print

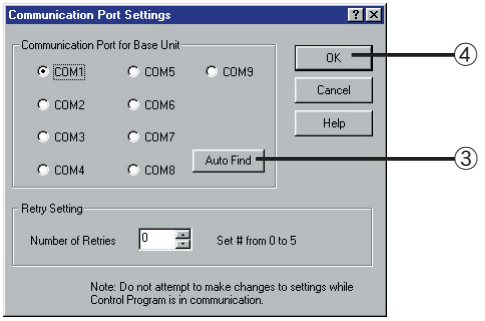
This will print out the Group settings you have made. If you select [Print Preview] in the [File] Menu you will be able to check the contents on a screen like the one shown here.


Wireless for Windows Group:Group Page:1
95/10/2402 14:44'25
1st Auto Downloading Method: Download daily at set time
Download Time 0 : 0
Remote unit (RTR-71)
Channel 1 Channel 1
Channel 2 Channel 2
Recording Interval 4min.
Auto Download No
Warning: Yes/ No No Monitoring
Check for Limit Warnings CH 1 Upper Limit: No °F Lower Limit: No °F
CH 2 Upper Limit: No °F Lower Limit: No °F
LCD Display Yes
Remote unit (RTR-72)
Channel 1 Channel 1
Channel 2 Channel 2
Recording Interval 4min.
Auto Download No
Warning: Yes/ No No Monitoring
Check for Limit Warnings CH 1 Upper Limit: No °C Lower Limit: No °C
CH 2 Upper Limit: No % Lower Limit: No %
LCD Display Yes

2. Communication Port Set up

① Connect the Thermo Recorder to the Computer with the Communication Cable.

② Select [Communication Port Settings] in the [Communication] Menu.



③ By clicking on [Auto Find] the correct port will be automatically found. A message as shown below will appear, by clicking [OK], set up will be completed.

④ Click [OK] in the [Communication Port Settings] window to close it.

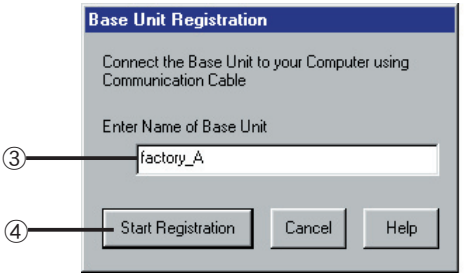
*If Auto Find does not detect a communication port, please see [Help] in the [Communication Port Settings] window.

3. Base Unit Registration

Any unit, RTR-71 or RTR-72, can be registered as a Base Unit

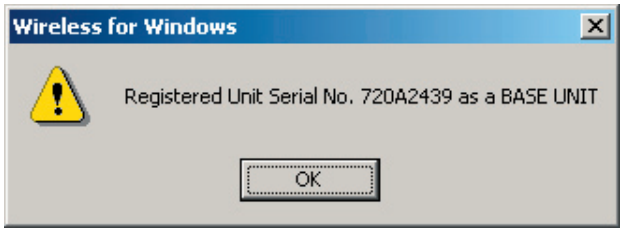
① Connect the Thermo Recorder unit to your computer that is to be registered as the Base Unit.

② In the [Registration] Menu, select [Base Unit Registration]



③ Enter a name for the Base Unit.

④ Click [Start Registration] and the registration process will begin. When completed the following window will appear, click [OK].



4. Creating a Group

For one Base Unit it is possible to create up up to 32 Groups for communication.

① In the [Registration], Menu select [Create New Group].

② Enter a Group Name.

③ After entering name, click [OK]. The Group name should appear in the Main Window.

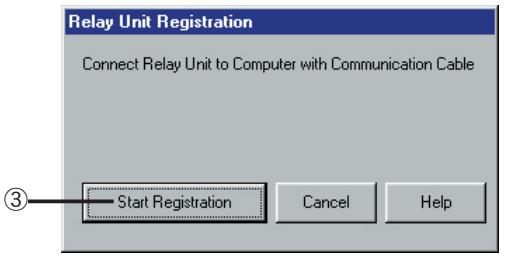
5. Relay Unit Registration

Please use only if communication conditions between the Base and Remote Units are poor.

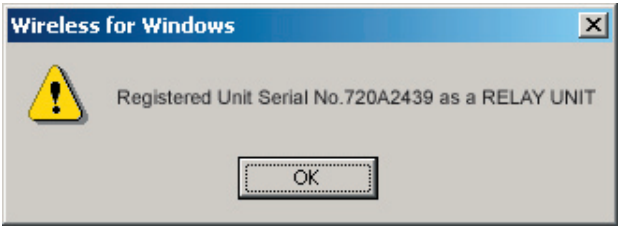
A Relay Unit can be created from either an RTR-71 or an RTR-72.

① Connect the Thermo Recorder unit to your computer that is to be registered as the Relay Unit.

② In the [Registration] Menu, select [Relay Unit Registration]



③ Click [Start Registration] and the registration process will begin. When completed the following window will appear, click [OK].



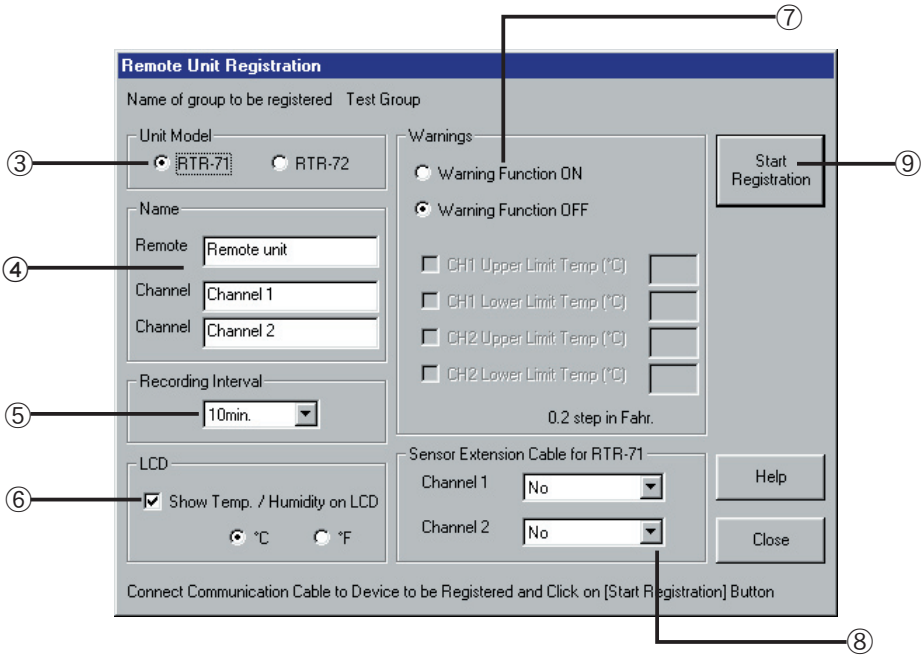
HELPFUL HINTS

- It is possible to add or delete a Relay Unit from a group at any time. After adding or deleting a Relay Unit, please carry out a communication test . (see p. 23)
- Whether a Relay Unit has been registered and its serial number will appear in the Group info in the Main Window.
- If you wish to change a group name or delete a group, go to the [Registration] Menu and select [Group Maintenance]. (see p51 for more about changing a name)

6. Remote Unit Registration

① Connect the Thermo Recorder unit to your computer that is to be registered as the Remote Unit.

② In the Main Window, select the group into which you wish to register the Remote Unit. In the [Registration] Menu select [Remote Unit Registration].



③ **[Unit Model]**

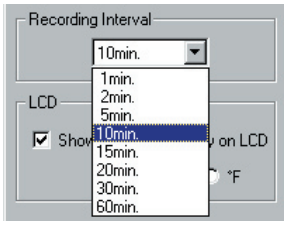
Choose type of Thermo recorder.

④ **[Name]**

Enter names for the Remote Unit and for each channel.

⑤ **[Recording Interval]**

By clicking on ▼ you can pull down the menu which shows the intervals(see figure 1) and make the desired selection.



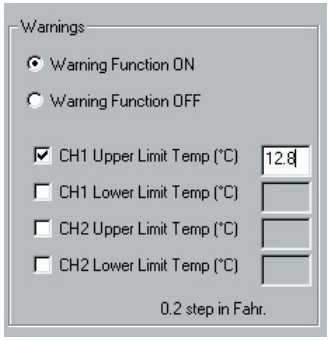
<Figure 1>

⑥ **[LCD]**

You can choose to display or not to display current measurements on the Remote Unit. You can also select the unit of display. (℃ or ˚F)

⑦ **[Warnings]**

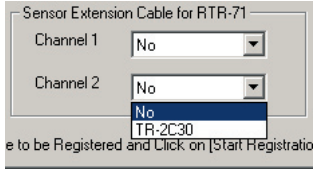
Choose whether Warning Function is ON / OFF. (See figure 2) If Warning Function is ON the check boxes will become active and you can set upper and lower limits for the channels you desire. (See p. 28 for more info on warning functions)



<Figure 2>

⑧ **[Sensor Extension Cable for RTR-71]**

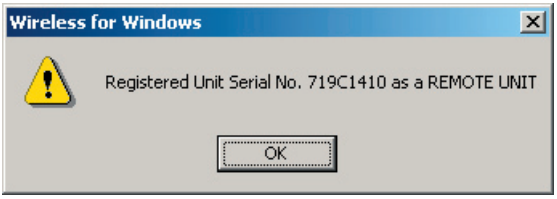
If the model you have selected is RTR-71, an extension cable can be used. (see figure 3) If you are going to use an extension cable click on ▼ and select the type of cable from the choices provided.



<Figure 3>

⑨ After all settings have been completed click [Start Registration]

⑩ Upon completion the following box will appear. Click [OK]



⑪ The Remote Unit Registration screen will remain in the window to continue registration of other units. Connect the next unit with the communication cable and follow the same procedure. If you need to change groups, you must close the Registration Window, return to the Main Window and choose the desired group.

HELPFUL HINTS

- In the Remote Unit Registration Window at the top the [Name of group to be registered in] will appear.
- After registration has been completed, the recording of data will begin automatically.
- You can change a Remote Unit's Registration (See p35 Change Remote Unit registration)

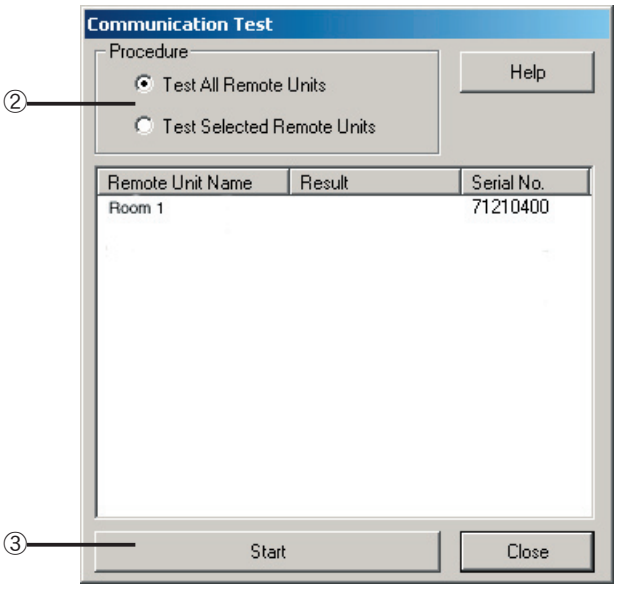
7. Communication Test

A communication test should be run by Group to see if communication between Remote, Relay and Base Units is occurring properly.

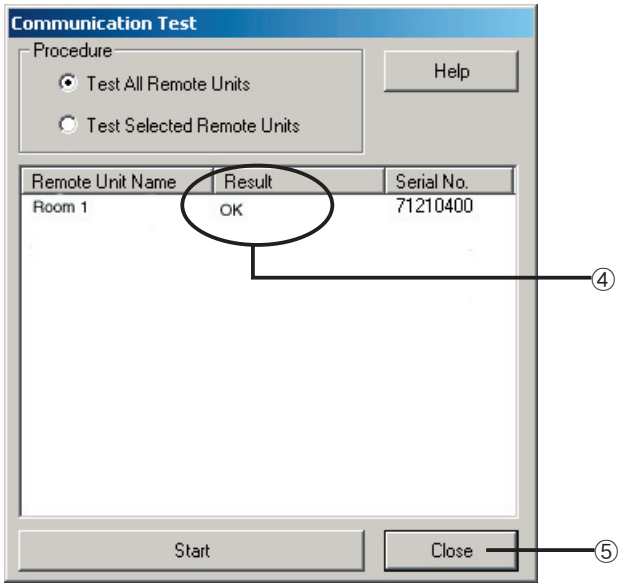
① Connect Base Unit to computer with communication cable. In the [Communication] menu, select [Wireless Communication Test].

② Choose Testing Procedure. If you choose [Test Selected Remote Units] remember to click the names of units you wish to test.

③ Click [Start] to begin testing.



④ After testing is completed, the results will be displayed. If communication has occurred properly [OK] will be displayed. If [NG] is displayed please check batteries of problem unit(s) and the connection of the Base Unit to computer, then run the test again.



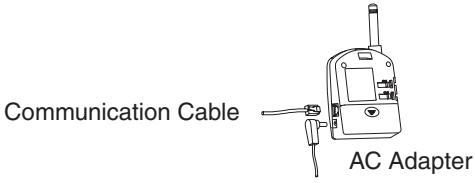
⑤ By clicking [Close] you can close the Communication Test Window.

8. Positioning the Units

If desired you can make [Monitor Warnings] (p28) and [Auto Download] (p30) settings. Upon finishing settings, place all units in their desired position.

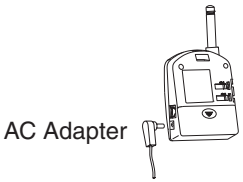
① Base Unit Positioning

Connect to computer with communication cable. Due to noise emitted from the computer and the display screen it is a good idea to place the Base Unit at least 1 meter away from them. Also, do not forget to connect the AC adapter.



② Relay Unit Positioning

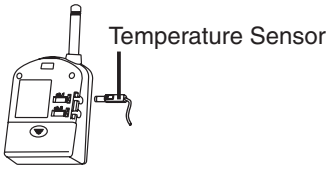
Remember to connect the AC adapter, place Relay Unit in desired position.



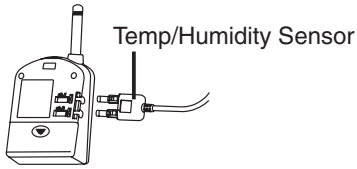
③ Remote Unit Positioning

Connect the sensor and position in the place that you wish to measure.

<RTR-71>



<RTR-72>



④ After positioning is completed, run the communication test again in the same manner as before (8. Communication Test). If the results are all [OK], all preparations are completed.

HELPFUL HINT

Even if no problem appears at set up, breaks in communication resulting in communication errors during auto download will sometimes occur later. You may have to reposition the unit if problems persist.

Wireless for Windows® Functions

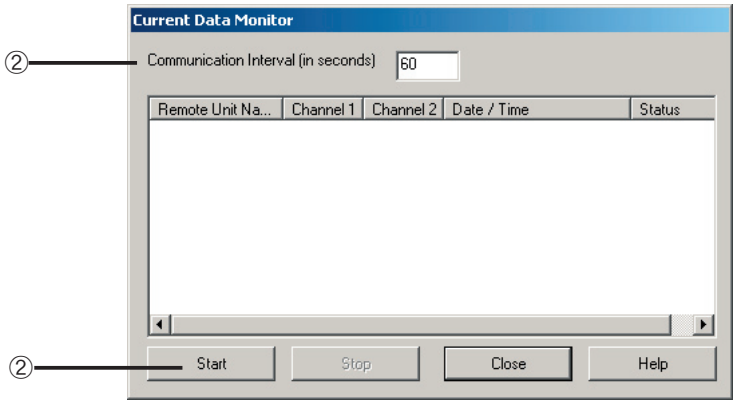
This section will explain about the following software functions:

- Monitoring Current Temperature / Humidity (p27)
- Monitoring Warnings and about the Warning Log (p28)
- Auto-Downloading and about the Auto-Download Log (p30)
- Wireless Downloading (p32)
- Downloading via Cable (p34)

1. Monitoring Current Temperature / Humidity

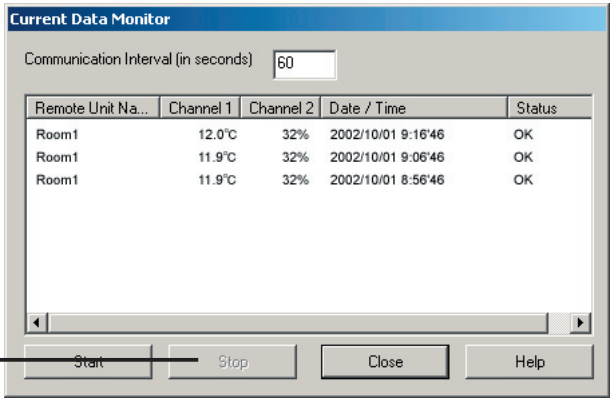
In the Main Window, select which Remote Unit(s) you would like to monitor. It is possible to monitor one or more units at a time, but it is not possible to save or print this monitored data.

① In the Main Window, select the Remote Unit(s) of which you would like to monitor current readings. In the [Communication] Menu, select [Monitor Current Temp "Start / Stop"]



② Enter monitoring interval and click [Start].

③ The monitoring results will be displayed as below. New data will be added at the top of screen as it comes in.

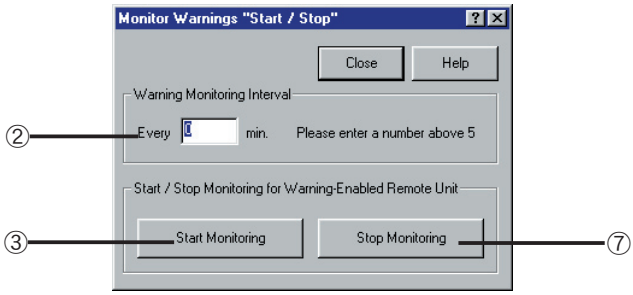


④ By clicking [Stop] you can end the monitoring function. If you want to stop monitoring during communication, you must first click [Cancel] in the Communication Dialog Box and then [Stop], or wait until communication is finished.

2. Monitoring Warnings

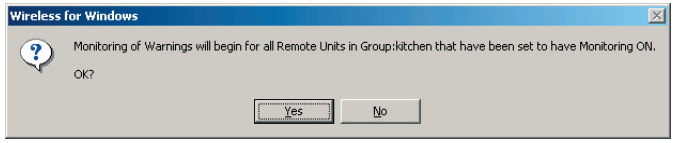
With this function a warning message will appear on your computer screen each time the upper or lower limit that you set when registering the Remote Unit has been exceeded. For this function to work, it is necessary that the Base Unit be connected to the computer, that the Wireless for Windows Control Program be activated and that screen saver and energy saving settings are off.

① In the [Communication] Menu select [Monitor Warnings Start / Stop]



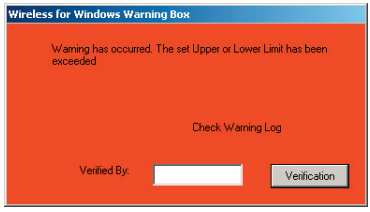
② Set the Warning Monitoring Interval. Monitoring will set up for all Remote Units for which limits have been set and the monitoring function has been checked ON.

③ Click [Start Monitoring]. The following dialog box will appear, if OK click [Yes].

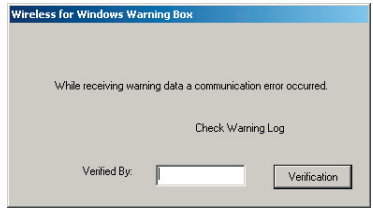

Wireless for Windows
Monitoring of Warnings will begin for all Remote Units in Group:kitchen that have been set to have Monitoring ON.
OK?
Yes
No

④ Monitoring will begin and the following box will appear. Click [OK]. In the Main Window a [YES] will appear for those units being monitored.

⑤ If a warning occurs, the following message will appear. The message will disappear only if and when someone verifies the message by entering his or her initials and clicking [Verification].


Wireless for Windows Warning Box
Warning has occurred. The set Upper or Lower Limit has been exceeded
Check Warning Log
Verified By:
Verification

This dialog box (RED) appears if a warning has occurred.



This dialog box appears if a communication error has occurred.

⑥ By going to the [Log] Menu and clicking on [Warning Log] you can view a history of the warnings.

⑦ To stop the monitoring function click on desired Group in the Main Window, then, in the [Communication] Menu open [Monitor Warnings Start / Stop] and click on [Stop Monitoring]. This will stop monitoring for all those units which had been selected and the [YES] in the Main Window should disappear.

HELPUL HINTS

Warnings will be displayed under the following conditions.

Variable Average of Measurements ≧ Upper Limit Setting
Variable Average of Measurements ≦ Lower Limit Setting

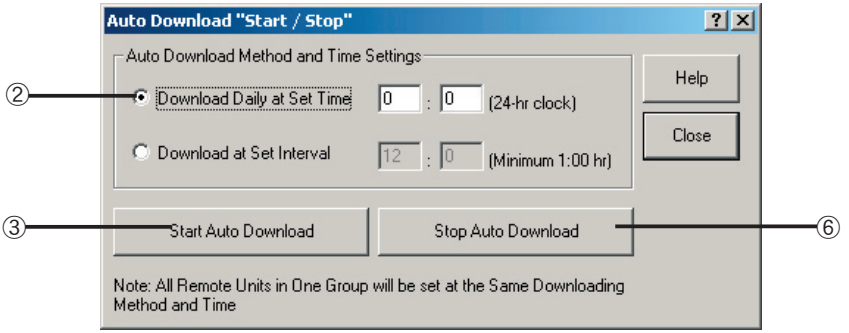
***Variable Average is calculated by adding measurements as they occur and divide by number of measurements.

For example: (x1+x2+x3)/3, (x2+x3+x4)/3, (x3+x4+x5)/3···

3. Auto-Downloading

By utilizing this function, you can automatically download data from Remote Units at a set time or set interval of time. For this function to work, it is necessary that the Base Unit be connected to the computer and that the Wireless for Windows® Control Program be activated.

① In the Main Window select the Remote Unit(s) you wish to Auto Download data from. In the [Communication] Menu select [Auto Download Start /Stop].


Auto Download "Start / Stop"
Auto Download Method and Time Settings
②
Download Daily at Set Time
0 : 0 (24-hr clock)
Download at Set Interval
12 : 0 (Minimum 1:00 hr)
Help
Close
③
Start Auto Download
Stop Auto Download
⑥
Note: All Remote Units in One Group will be set at the Same Downloading Method and Time

② [Auto Download Method and Time Settings]

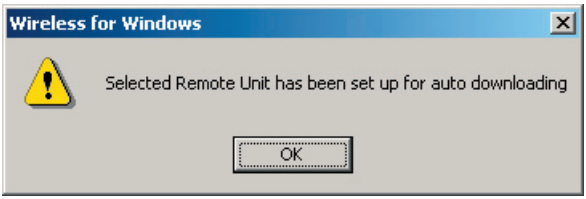
Download Daily at Set Time···Will download at selected time once a day. Enter using 24-hour clock. (4:00pm=16:00).

Download at Set Interval···Will automatically download at selected time interval. Enter an interval of more than 1 hour and less than 24 hours.

NOTE:

- The method and time settings must be the same for all units in the same group. (The latest setting will go into effect for units in that group.)
- If you need to make any changes to your computer clock settings, please stop the Auto Download function and reset after making changes. (for more info see Help Menu)

③ Click [Start Auto Download]. After settings have been made the following box will appear. Click [OK].



④ In the Main Window, a [YES] should appear under Auto Download for those units selected. Each Remote Unit can be set to have Auto Download ON or OFF.

⑤ By going to the [Log] Menu and selecting [Auto Downloading Log] you can view the history of Auto Downloading activities. Also, by clicking on the Control Program icon in the task tray you can open the [Show Auto Download Schedule] to check the schedule for downloading.

⑥ To stop the Auto Downloading function, click on the desired unit(s) and in the [Communication] Menu, select [Auto Download Start /Stop]. Click on [Stop Auto Download]. In the Main Window the [YES] under Auto Download should disappear for selected units. (about data files see p34 , about graph display see p38)

HELPFUL HINTS

● When making Auto Download Interval settings it is important to remember that downloading data from one unit may take up to 5 minutes. Therefore, for example, if you have 20 units each at 5 minutes the downloading process itself will take 100 minutes or 1 hr and 40 min. So you must make the interval setting for at least that amount of time. Also be aware that each time an Auto Downloading occurs a new data file is created. Therefore make sure that there is always enough empty disk space for these data files. It may be a good idea to move them to another disk at regular intervals to assure space.

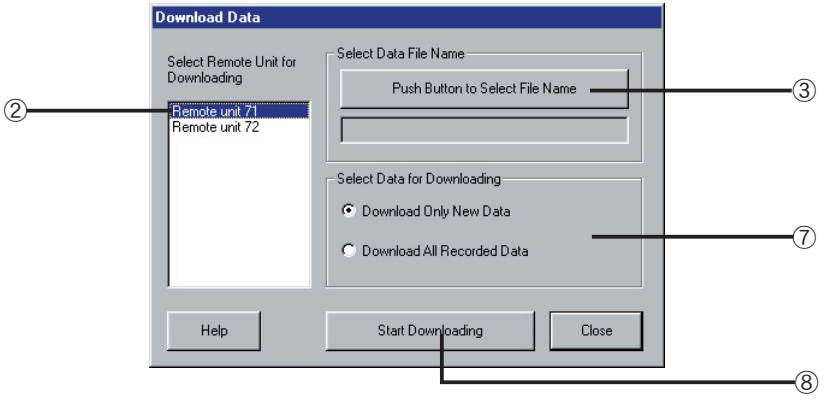
4. Manual Downloading

4. 1 Wireless Download

Downloading data from selected Remote Unit(s) by wireless communication.

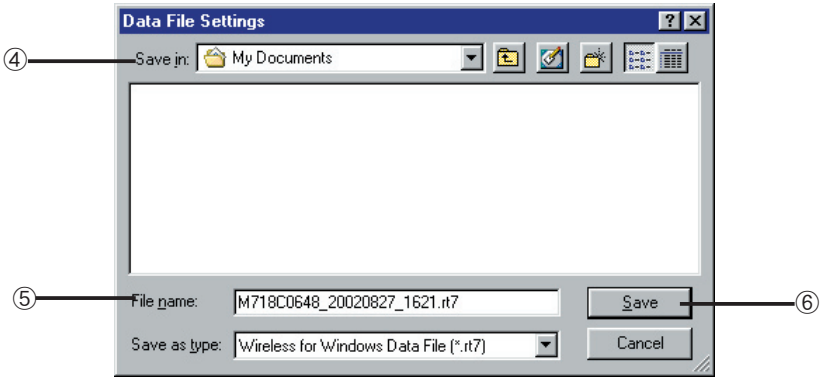
① In Main Window, select desired Group.
In the [Communication] Menu, select [Wireless Download].

② Select the unit from which you wish to download data.



③ [Select Data File Name]

By clicking on [Push Button to Select File Name] the following box will appear.



④ Select the [Place to be Saved]

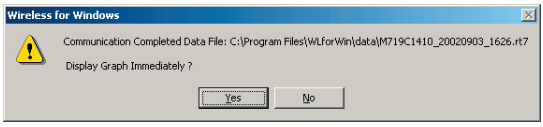
⑤ Enter [File Name]. The default name, which is made up of the Remote Unit's serial number -date-time, will be displayed. You can change this name. (More about file names on p34)

⑥ Click [Save]

⑦ In [Select Data for Downloading], choose [All Recorded Data] or [New Data].

⑧ If all settings are as desired, click [Start Downloading] and the process will begin.

⑨ After downloading has been completed, the following box will appear. If you wish to have the data immediately displayed as a graph, click [Yes]. If you want to continue downloading other data before creating a graph, click [No].



⑩ By clicking [No] you can continue to download other data from units in that group. Follow the same steps from ② as outlined above. If you want to download data from a different group, please close the Download Dialog Box and go back to the Main Window where you can select the next group and follow the same steps from step ① as outlined above.

4. 2 Download via Cable

Downloading data directly from a Remote Unit by connecting the unit to the computer with the communication cable.

① Connect the Remote Unit that is to be downloaded to your computer.

② In Main Window, select Group. In the [Communication] Menu select [Download via Cable Connection]

③ Downloading procedure is as outlined above in 4.1 Wireless Download. But, when selecting [Unit for Downloading], the category [Unregistered Remote Unit] has been added to allow you to download data from Remote Units that have been registered into a different computer.

HELPFUL HINT

Whether you download via communication cable or by wireless communication a Wireless for Windows type(*. rt) data file will be created for each downloaded data. The default name is made up of the Remote Unit's serial number and date / time of download.

Example: M71850011_19990122_1105. rt7

1. A: Auto Download, M: Manual Download
2. Remote Unit Serial Number
3. Date of Download (Ex: 1999/1/22)
4. Time of Download (Ex: 11:05am)

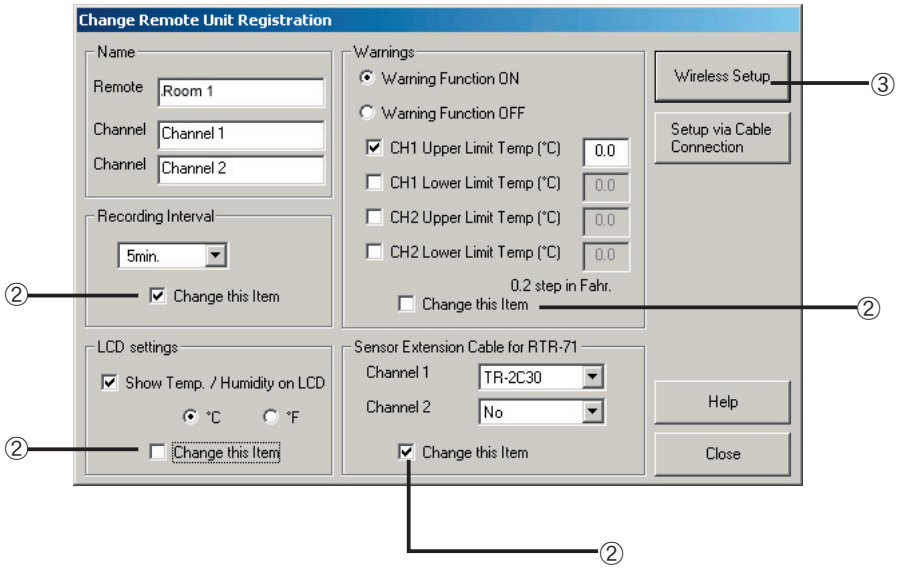
Changing Registrations and Settings

1. Changing a Remote Unit Registration

Even after registering a Remote Unit you can easily change the unit name, recording interval, LCD settings, as well as warning monitoring settings.

① In the Main Window, select the Remote Unit you wish to change. In the [Registration] Menu, select [Change Remote Unit Registration].

*If making name changes to Remote Unit or channels, you can only select one unit at a time. Other changes can be made to multiple units at the same time. However, you cannot select both RTR-71 and RTR-72 at the same time.



② Changing Settings

Make changes and click [Change this Item] in order to make changes effective.

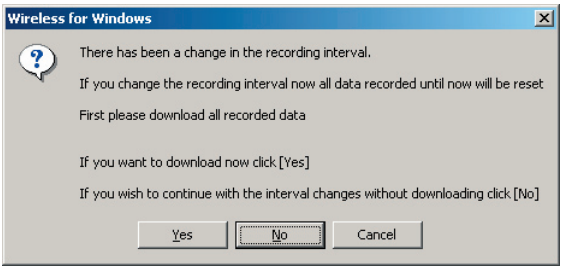
③ Communicate changes by wireless or via cable communication.

By clicking [Wireless Setup] the changes will be communicated via radio waves.

By clicking [Setup via Cable Communication] you must connect the unit to the computer with the cable and changes will be communicated.

Notice

If you make changes to the Recording Interval all data that has been recorded but not yet downloaded will be reset. You should first download all data before making changes to the Recording Interval. When making changes to the Recording Interval the following dialog box will appear.

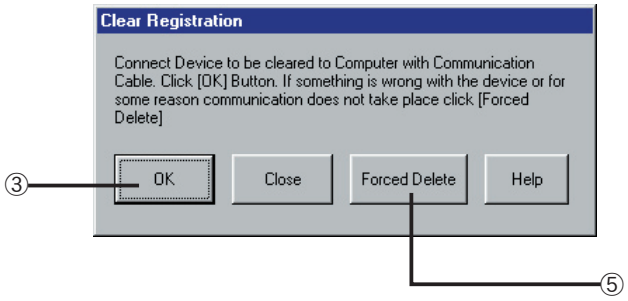

Wireless for Windows
There has been a change in the recording interval.
If you change the recording interval now all data recorded until now will be reset
First please download all recorded data
If you want to download now click [Yes]
If you wish to continue with the interval changes without downloading click [No]
Yes
No
Cancel

2. Clearing a Registration

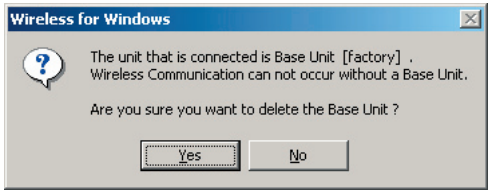
It is possible to clear any unit's registration (Base, Relay, or Remote Unit). Even if due to some unit malfunction communication cannot take place, deleting the registration file from the computer is possible (Forced Delete).

① Connect the Wireless Thermo Recorder unit that is to be cleared to your computer.

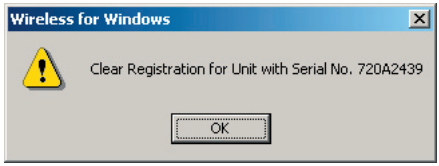
② In the [Registration] Menu select [Clear Registration]


Clear Registration
Connect Device to be cleared to Computer with Communication Cable. Click [OK] Button. If something is wrong with the device or for some reason communication does not take place click [Forced Delete]
③
OK
Close
Forced Delete
Help
⑤

③ Click [OK]


Wireless for Windows
The unit that is connected is Base Unit [factory] .
Wireless Communication can not occur without a Base Unit.
Are you sure you want to delete the Base Unit ?
Yes
No

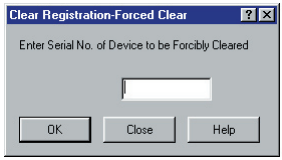
④ If you wish to complete the clearing of the unit displayed in box; click [Yes] and the registration will be cleared. Upon completion the following box will appear; click [OK]



How to use Forced Delete.

⑤ Click [Forced Delete] in the [Clear Registration] dialog box

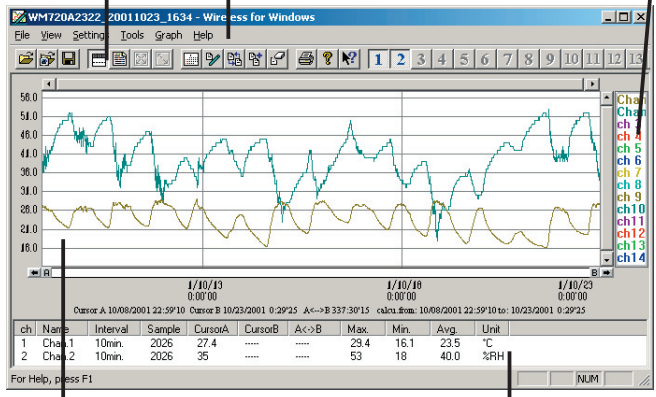
⑥ The following box giving info about the unit's serial number will appear. If ok, click [OK].



Graph Tools Program

This part of the software allows you to read the downloaded data to create graphs and tables for display or for printing. It also enables you to create text type files for use with spreadsheet applications.

1. Explanation of Display


Channel Name Display Area
By holding down the left mouse button on this area, the area will expand to allow you to read full channel names
Toolbar
Menu
Graph Area
The horizontal axis is date/time and vertical axis is unit of temp / humidity . By dragging mouse across area you can zoom in on area covered with mouse.
Channel Info
A list of information for each channel

● Toolbar

① Open Data File
② Open File from Remote Unit
③ Save
④ Show Channel Info
⑤ Show Data in Table Form
⑥ Undo Zoom
⑦ Fade Zoom to Original Size
⑧ Calculation Range Settings
⑨ Edit Recording Conditions
⑩ Re-order Channels
⑪ Merge Channels
⑫ Delete Channel
⑬ Print
⑭ Help
⑮ About
⑯ Channel Display ON / OFF

2. Opening a File

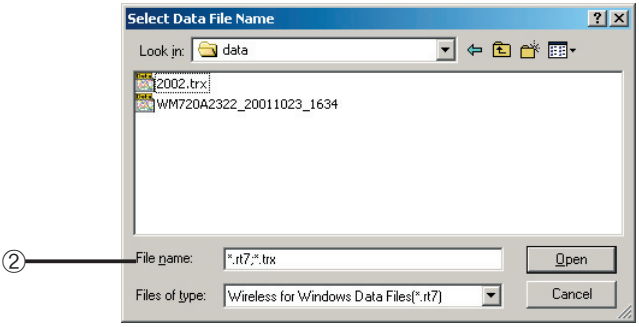
By calling up and opening a downloaded data file you can create graphs, tables or print out data.

2. 1 Opening a Data File

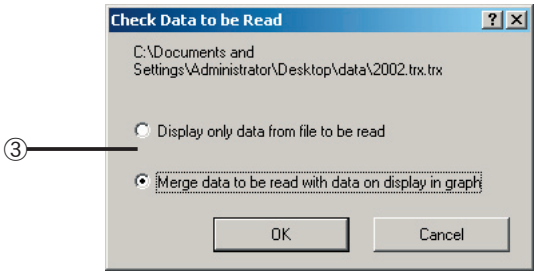
Follow these steps to open an already saved file either by the name it was saved under or our Thermo Recorder common file type (*. trx)

① In the [File] Menu, click [Open]

② Select name of file you wish to open and click [Open]



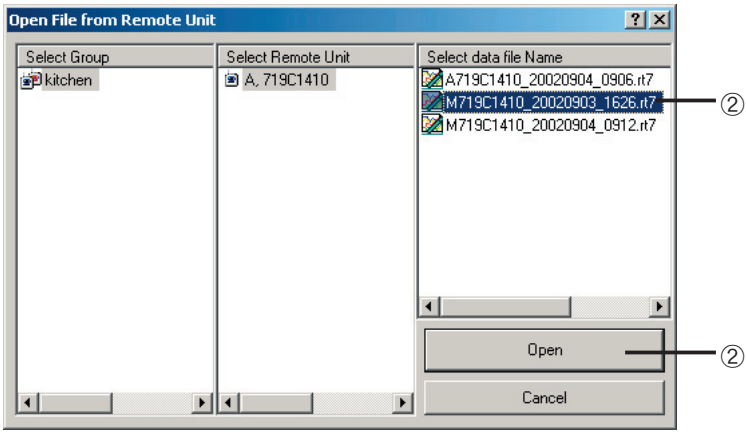
③ Select how you would like the data to be read into the display, click [OK] and a graph will be created displaying data.


Check Data to be Read
C:\Documents and Settings\Administrator\Desktop\data\2002.trx.trx
③
Display only data from file to be read
Merge data to be read with data on display in graph
OK
Cancel

2. 2 Opening File from Remote Unit

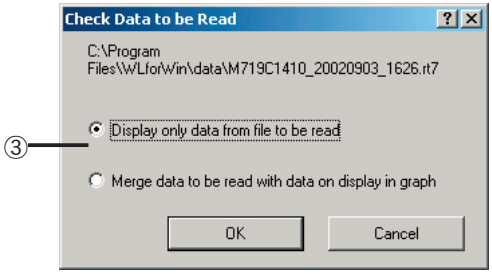
Follow these steps to open Wireless for Windows type data files (*. rt7)

① In the [File] Menu, click [Open File from Remote Unit]



② From the left side, first select a Group, then a Remote Unit and the data files will appear on the right side. Select the file from the list you would like to open and click [Open].

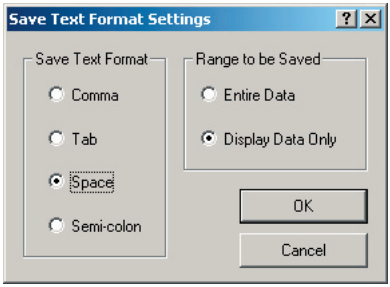
③ Select how you would like the data to be read into the display, click [OK] and a graph will be created displaying data.


Check Data to be Read
C:\Program Files\WLforWin\data\M719C1410_20020903_1626.rt7
③
Display only data from file to be read
Merge data to be read with data on display in graph
OK
Cancel

3. Saving as Text File

In order to use data with most spreadsheet applications the data can be saved in a Text Type File (*. txt).

① In the [File] Menu, select [Save as Text File].

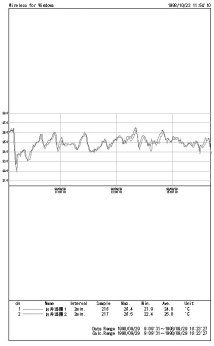


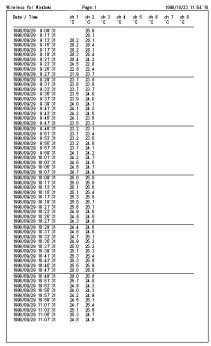
② Select [Save Text Format] and [Range to be Saved], then click [OK].

- Comma, tab, space, and semi-colon are codes used to separate cells for most common spreadsheet applications.
- Wireless for Windows® cannot read Text Type Files.

4. Printing

You can print both graphs and tables. You can also check the print preview image before printing.





*The vertical and horizontal axes of the printed image will be of the same ratio as the displayed image.

Data Maintenance Functions

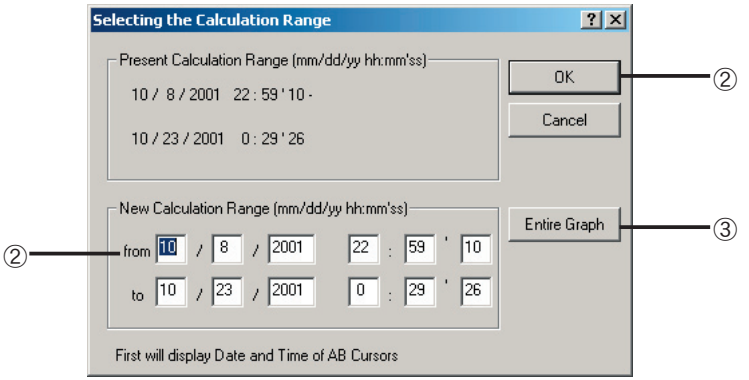
This section will explain the following:

- Calculation Range Settings
- Edit Recording Conditions
- Merging Channel Data

1. Calculation Range Settings

It is possible to make settings for the calculation ranges for the highest value, the lowest value and measurement for any channel listed. When the data is first read the calculation range is set for all data.

① In the [Tool] Menu, open [Calculation Range Settings].


Selecting the Calculation Range
Present Calculation Range (mm/dd/yy hh:mm'ss)
10 / 8 / 2001 22 : 59 ' 10 -
10 / 23 / 2001 0 : 29 ' 26
OK
Cancel
New Calculation Range (mm/dd/yy hh:mm'ss)
Entire Graph
from 10 / 8 / 2001 22 : 59 ' 10
to 10 / 23 / 2001 0 : 29 ' 26
First will display Date and Time of AB Cursors
②
②
③

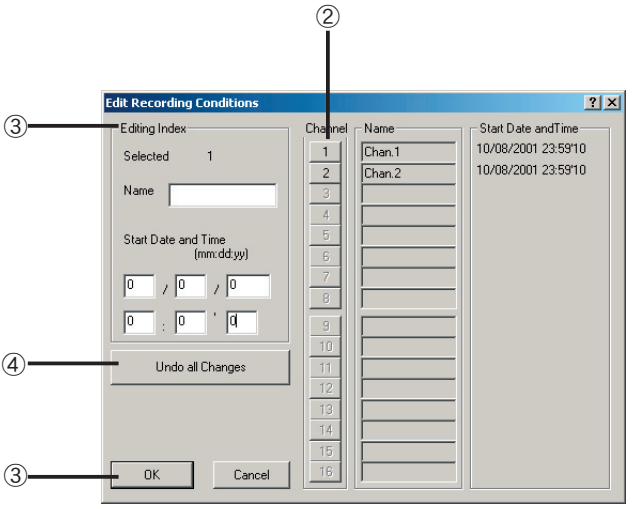
② In [New Calculation Range] enter the dates and times for the calculation range you desire. The calculation range displayed upon opening this dialog box is that of the A/B Cursors present positions. After making the desired settings click [OK].

③ If you want the range to be that of the data in the whole graph, click [Entire Graph].

2. Edit Recording Conditions

Here you can change the channel name(s), as well as, the data recording start date and time. The changing of recording start date and time is for the purpose of merging data and cannot be used to change data.

① In the [Tools] Menu, open [Edit Recording Conditions].



② [Channel] Click on the channel number to which you wish to make changes.

③ [Editing Index] The settings for the channel selected will be displayed. Enter the new settings you wish to make. Once settings are as desired, click [OK].

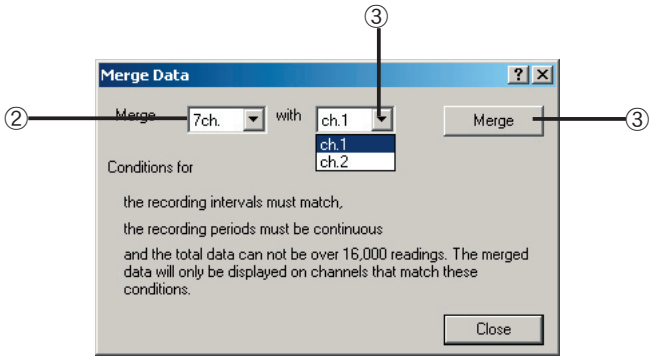
④ If you want to return the settings to as they were, click [Undo all Changes] and the recording conditions will return to the same as before opening the dialog box.

3. Merging Channel Data

You can merge data from two different channels.

① In the [Tool] Menu, open [Merge Data].

② Select the appropriate channels in the left box.



③ By clicking on the right side ▼ , all channels containing data that can be merged will be displayed. Select desired data and click [Merge] to begin the merging process.

④ If no mergable data appears in the right side box, make changes in [Edit Recording Settings] and return to merge data after making necessary changes.

Helpful Hint

After merging data, the channel color will appear as that of the channel selected first. For example; you selected channel 1 and wanted to merge channel 3 with it. After merging the channel color will appear as that of channel 1 and the channel 3 color will not be displayed. If there is unnecessary data, you can get rid of it by using the [Delete Data from Specified Channel] function in the [Tool] Menu.

Troubleshooting

■ Re-installing the software

① Close Wireless for Windows; making sure to close the Control Program in the task tray as well.

② Open [Add / Delete Applications] in the Control Panel. After selecting [Wireless for Windows] click on the [Add / Delete] Button.

③ By clicking [OK], [Wireless for Windows] will be deleted.

④ Please reinstall [Wireless For Windows] following the installation instructions.

■ Replacing Batteries

If the Battery Life Warning comes on, change the battery as soon as possible. When changing the battery please use the included [Battery Change Plug] and follow these directions:

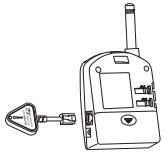
① Connect the Battery Change Plug to the unit (see figure 1). Check to see if the (BAT) indicator is either on or flashing and that the Antenna Indicator ( ) is off.

② Make sure that the COM mark is not flashing.

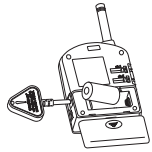
③ Change the battery.(see figure 2) Use CR123A Battery Only.

④ Remove the Battery Change Plug. Make sure that the (BAT) indicator goes off and that the Antenna Indicator ( ) comes on in the LCD display.

<figure 1>



<figure 2>

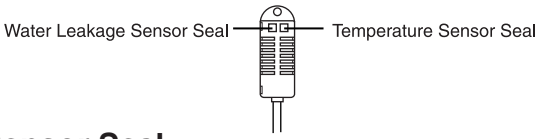


Helpful Hint

- If the (BAT) Indicator appears communication will no longer be possible between the Remote Unit and the Relay Unit or the Base Unit, but measuring and recording will continue.
- If battery power is lost completely all registration settings will remain so there is no need to re-register, but ALL DATA WILL BE LOST.

■ About Temp / Humidity Sensor (TR-3220)

- The included sensor should be changed after about one year of use, please change one year after opening.
- If directions for usage and or storage are not followed, the sensor may lose accuracy in less than one year.
- When not in use for a prolonged period place in a vinyl bag and store in a cool dark place at a temperature between 5-20℃ and less than 30% humidity.
- There are two kinds of seals on the sensor. If either seal changes color, even within the one-year period, please change sensors.
- This sensor is not waterproof.



Water Leakage Sensor Seal

The seal turns red in an abnormal state. This indicates that the sensor has gotten wet.

Normal — Normally will appear with white background and black dots

Abnormal — Under abnormal conditions will turn RED.

Temperature Sensor Seal

This indicates that the sensor was exposed to a temperature of 60℃ or higher.

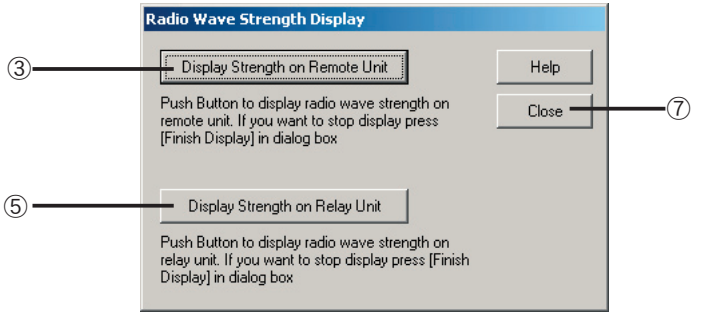
Normal — Seal is light pink with the figure "60" slightly readable.

Abnormal — Seal turns bright red in abnormal state and the figure "60" is clearly displayed.

■ Error Messages

If wireless communication is not working, run a radio wave strength check on the Remote Unit(s) and / or the Relay Unit in question and re-position the unit(s) according to the percentages displayed on their LCD display(s).

① In the [Communication] Menu, open [Radio Wave Strength Display] .

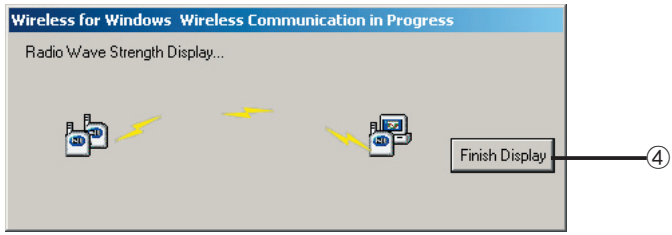

Radio Wave Strength Display
③
Display Strength on Remote Unit
Help
Push Button to display radio wave strength on remote unit. If you want to stop display press [Finish Display] in dialog box
Close
⑦
⑤
Display Strength on Relay Unit
Push Button to display radio wave strength on relay unit. If you want to stop display press [Finish Display] in dialog box

② Make sure Base Unit is connected by communication cable to your computer.

③ By clicking on [Display Strength on Remote Unit], the radio wave strength will appear on the LCD Display of the Remote Unite as follows. *(It will take about 30 seconds for the level to be displayed.)

*COM will flash.
<Remote Unit LCD Display>

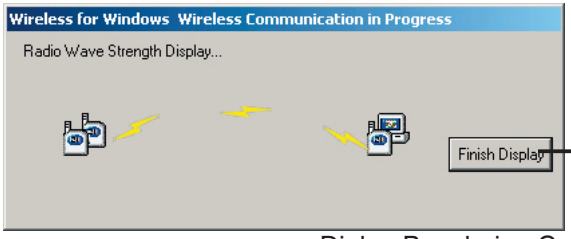
④ Decide on the best position for the unit and click [Finish Display] in the dialog box.



⑤ If you are running the check on a Relay Unit, click on [Display Strength on Relay Unit], the radio wave strength will appear on the LCD Display of the Relay Unit as follows:

*COM will flash.
<Remote Unit LCD Display>

⑥ Decide on the best position for the unit and click [Finish Display] in the dialog box.



<Dialog Box during Communication.>

⑦ After finishing positioning the units(s), close the [Radio Wave Strength Display] Dialog Box.

Guide for Values in LCD Display

80% or above ・・・Communication Good
60-79%・・・・・・Communication Fair
50-59%・・・・・・Possible Communication Errors

■ Other FAQ's

Q1: I can't get the data from the Thermo Recorder to download into the computer. What should I do?

- Make sure each unit (Base, Relay and Remote) has power.
- Make sure that the communication cable provided has been connected properly to the computer serial port (D-sub 9 pin male connector). If you cannot connect directly to your computer, use one of the following gender changer adapters.

NEC PC 98 Series (excluding NX Series)	
Computer Serial Port	D-sub 25 Pin female
Adapter	D-sub 9 pin male ---D-sub 25 pin male

NEC PC98 Series Laptop (excluding NX Series)	
Computer Serial Port	Half pitch 14 pin female
Adapter	D-sub9 pin male··· Half pitch 14-pin male
Adapter Combination	D-sub9 pin male--- D-sub25 pin male
	D-sub25 pin female---Half pitch 14 pin male

IBM Compatible (DOS/V)	
Computer Serial Port	D sub25 pin male
Adapter	D sub9 pin--- D sub25 pin female

Note: Please use all above adapters directly and not in combinations.

- Please check your computer energy saving settings and make sure the default setting does not render the serial ports unusable. In particular, NEC PC98 Series Notebook Computers may have such a default setting.

・If your computer is IBM Compatible (DOS/V), check whether the serial port has been rendered unusable by the BIOS setting.

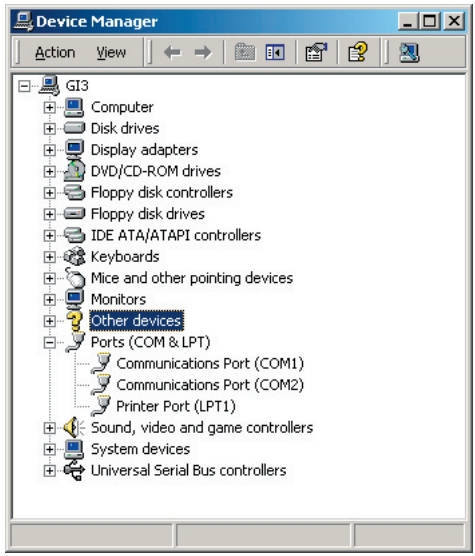
・If your computer has an internal modem, make sure that the communication port is not being used by the modem. In some cases, users of Windows 95 may not be able to use COM 1 even though the settings have been made. Check to see which port is being used by the modem. You can check this in the Control Panel by opening [Modem].

・If you have another computer, please try communication using that computer.

・Make sure the serial port is usable or not. With many all-in-one computers, the modem or other such device is using it. Please take the following steps to check your serial port and if it is unusable please contact your computer's maker.

① Please go to the [Control Program] Menu and open [System].

② Here you will find [Device Manager], open and click on [Port (COM&LPT)]



③ If a [!] or [x] appears next to a communication port, it is unusable.

④ Even if no such mark appears, please check to make sure that under [Port (COM&LPT)] a [Communication Port (COM 1)] and /or a [Communication Port (COM 2)] appears. If a port does not appear here, it cannot be used.

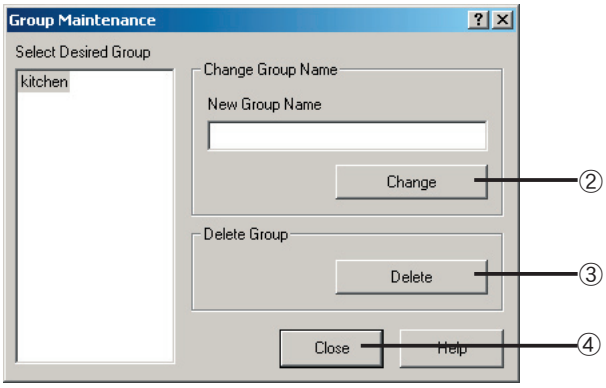
Q2: Can I use this software with Windows® 3. 1?

・This software is 32-bit software and is not compatible. Please use Microsoft® Windows® 95/98/ Windows NT®4. 0 /Windows® 2000, Me, or XP.

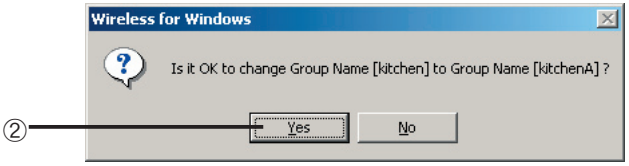
Q3: I want to change the Group Name or delete it. What should I do?

・Please follow these steps to change a group name or delete a group.

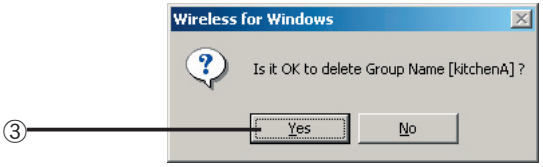
① In the Main Window, under [Registration] select [Group Maintenance].



② To change a Group Name select the group from the list on the left, enter the new Name and click [Change]. A dialog box as follows will appear, click [Yes] if the information is correct.



③ To delete a Group that has no Remote or Relay Units registered to it, click [Yes] if the information is correct.



④ Finish by clicking on [Close]

Q4: The Warning Dialog Box does not appear when it should. Why?

・Make sure that the screen saver function is turned OFF. Also, make sure that all screen energy saving settings are OFF.

Product Specifications

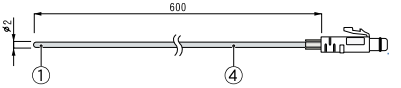
Software Specifications for RTR-70 (Wireless for Windows®)

Compatible Devices	RTR-71, RTR-72
Number of Channels	16 Channels Simultaneous Display and Processing (RTR-71, RTR-72 total of up to 8 units of mixed data possible)
Communication Functions	Base/ Remote / Relay Unit Settings /Interval Settings Warning Settings/Downloading (Manual/Auto) / Display Settings / Current Readings Monitor Settings
Graph Display	Temperature and Humidity Graphs for each Channel (Zoom in, out and scroll with mouse or keyboard Change Channel Colors/ Turn ON and OFF Channel Display
Data Display	Channel Name / Recording Interval / Number of Readings / Highest / Lowest and Average Readings / Unit of Measurement / AB Cursor Dates/ Times and Data Readings / Calculated Difference between Cursor A and B
File Out Put	RTR Specific Data File / Text File (CSV, etc) (Possible to output data for specific range or time period)
Printing	Graphs / Tables
Others	Data Table Display / Calculation Range Settings / Data Maintenance Delete Data by Channel / Re-order data by Channel
Compatible OS	Microsoft Windows® 95/98/Me Microsoft WindowsNT® 4. 0 Microsoft Windows® 2000, XP
PC/CPU	IBM Compatible with higher than Pentium® 90MHz Serial Port (RS-232C D-sub 9pin)
Memory	More than 16MB (More than 16MB recommended)
Hard Disk	More than 3MB of free space (Data will need more space)
Monitor	VGA(640x480)・more than 256 colors possible
Accessories	Communication Cable × 1 (RS-232C：D-Sub9Pin / Cable Length: 1. 5m) AC Adapter × 1/ Battery Change Plug × 1 / Software × 1set / User's Manual (Warranty)

Optional Sensor Guide

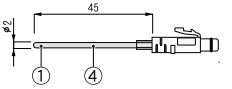
■ Sensor for RTR-71

TR-5106 Teflon-Shielded Sensor



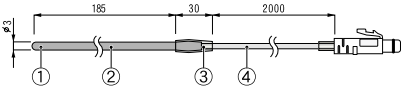
Possible Measurement Range: -60 to 155℃
Sensor Temperature Durability: -70 to 180℃
Cable Length: 0. 6m
Thermal-Constant Time:
In Air: Approx. 15 Sec.
In agitated water: Approx. 2 Sec.
Water Resistant Ability: Splash Proof
(Sensor and Cable)

TR-5101 Teflon-Shielded Sensor



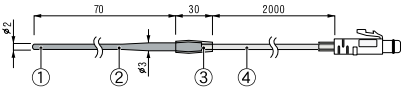
Possible Measurement Range: -60 to 155℃
Sensor Temperature Durability: -70 to 180℃
Cable Length: 45mm
Thermal-Constant Time:
In Air: Approx. 15 Sec.
In agitated water: Approx. 2 Sec.
Water Resistant Ability: Splash Proof
(Sensor and Cable)

TR-5220 Stainless Protection Sensor



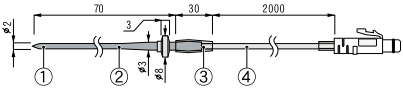
Possible Measurement Range: -60 to 155℃
Sensor Temperature Durability: -70 to 180℃
Cable Length: 2m
Thermal-Constant Time:
In Air: Approx. 36 Sec.
In agitated water: Approx. 7 Sec.
Water Resistant Ability: Splash Proof
(Sensor and Cable)

TR-5320 Stainless Protection Sensor



Possible Measurement Range: -60 to 155℃
Sensor Temperature Durability: -70 to 180℃
Cable Length: 2m
Thermal-Constant Time:
In Air: Approx. 12 Sec.
In agitated water: Approx. 2 Sec.
Water Resistant Ability: Splash Proof
(Sensor and Cable)

TR-5420 Stainless Protection Sensor



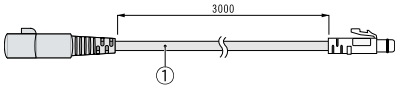
Possible Measurement Range: -60 to 155℃
Sensor Temperature Durability: -70 to 180℃
Cable Length: 2m
Thermal-Constant Time:
In Air: Approx. 12 Sec
In agitated water: Approx. 2 Sec.
Water Resistant Ability: Splash Proof
(Sensor and Cable)

Materials

① Thermistor ② Stainless Pipe(SUS316) ③ Teflon Compaction Tube
④ Teflon Resin (FEP)-Shielded

Measurement Accuracy: Average ± 0. 3℃ (-20 to 80℃)
Average ± 0. 5℃ (-40 to -20℃ / 80 to 110℃)
Average ± 1. 0℃ (-60 to -40℃ / 110 to 155℃)

TR-2C30 Sensor Extension Cable



Cable Length: 3m

Splash Resistant

① Viny Chloride Coated Wire

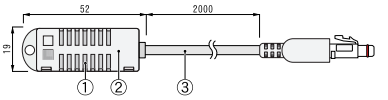
⚠CAUTION

Use only one extension cable per temperature sensor. When using an extension cable, carry out the appropriate setting changes. See [Sensor Extension Cable for RTR-71] on p22. When using the extension cable there will be a +0. 3℃ at normal temperature and at -50℃ a gap of +0. 5℃ may occur.

■ Sensor for RTR-72

TR-3220 Temperature and Humidity Sensor

Humidity Measurement Range: 10 to 95%RH
Humidity Measurement Accuracy:
5%RH (at 25℃ and 50%RH)
Temperature Measurement Range:0 to 50℃
Sensor Durability Range:-10 to 55℃
Cable Length: 2m
Service Life: 1year under normal conditions



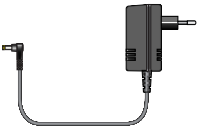
① Temperature / Humidity Sensor
② Polypropylene resin
③ Vinyl Chloride Coated Wire

Operational Conditions: No Dew Condensation or Water Leakage / No contact with organic solvents, solutions or gasses emitted from spoiled foods. An extension cable cannot be used with the humidity sensor.

■ AC adapter for AD-0604

AD-0604

Input: 230V 50Hz
Output: 6V 50mA 0.3VA
Cable length: 1.80m



Radio, EMC and Safety Regulations

CE

- RTR-7 Series complies with technical specifications required EN 301 489-3 (with battery and AC Adapter), EN 300 220-3 and EN 60950:2000.
- Allowed to use in: A. B. D. DK. F. I. P. S. SW. UK. N. NL. CH. FIN.

■ Inquiries

T&D CORPORATION

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Warranty

Provisions for Free Repair

1 If the unit does not work properly despite the fact that the customer used it properly and in line with the User's Manual, the unit shall be repaired free of charge through the agent which sold the unit.

2 If the customer requests free repair because of trouble within the warranty period, bring or send the unit along with the warranty to the dealer. A service charge may be added if a repair person must be sent out to the place of use for repair.

3 If you have moved after purchasing, or the product was received as a gift, or there are some difficulties contacting the shop from which you purchased the unit, please contact us directly for service.

4 Free repair is not available in the following cases even though it is within the warranty period:

(1) Trouble or damage was caused by careless operation, natural disaster, fire, public pollution, or use of a power source other than specified.

(2) If repair, adjustment, disassembly or modification of the unit has been carried out by a person other than a T&D authorized engineer.

(3) Trouble or damage was caused by transportation, movement or dropping of the unit after purchase.

(4) Failure to submit the Warranty or failure to fill in all items required in the Warranty.

5 The Warranty cannot be reissued.

★ This Warranty only promises customers free repair within the period and conditions specified in this Warranty. Therefore, the customer's legal rights will not be limited by this Warranty. For further information on repair and others service questions after the termination of the warranty period, contact your dealer.